



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,154	02/13/2002	Miguel Peeters	1875.2040001	4699
26111	7590	12/13/2005	EXAMINER	
STERNE, KESSLER, GOLDSTEIN & FOX PLLC 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			KIM, KEVIN	
			ART UNIT	PAPER NUMBER
			2638	
DATE MAILED: 12/13/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/073,154	PEETERS, MIGUEL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kevin Y. Kim	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see Remarks, filed September 23, 2005, with respect to the rejection(s) of claim(s) under 35 USC 102/103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a newly found prior art, as set forth below.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,3-7,9-13,15-17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Strait et al (US 6,834,079).

Claims 1,3,7,9,13,15,17,20.

Strait et al discloses (see Fig.1 and 2) a modem receiving a multitone signal having a plurality of symbols with a cyclic extension of length M samples transmitted through a channel (120), comprising:

a signal input for receiving the multitone signal (140) and

a transversal equalizer (144) connected to the signal input and including a finite impulse response filter (154) such that the combined impulse response of the channel (H(z)) and the transversal equalizer (1-A(z)) targets a target impulse response (B(z)) having N taps, where N

Art Unit: 2638

and  $M$  are integers and  $N < (M+1)$ . See col. 4, line 67 – col.5, line 3 describing that “the length of the filter  $B(z)$  is selected to match the length of the cyclic prefix.” In other words,  $M=N$ , thus meeting the condition  $N < (M+1)$  required in the claim.

Further with respect to claims 17 and 20, Fig. 1 shows a first modem (102) having a cyclic extension addition module (see col.4, lines 19-27) and a D/A converter (136) for transmitting the DMT symbols and extension.

Claims 4,10 and 16.

As admitted by applicant, the target impulse response having  $N$  samples is internally represented by a data set having  $M+1$  data elements, at least the first or last of the  $M+1$  data elements being set to zero. See Specification at page 2, lines 5-24.

Claims 5,6,11,12.

See col. 5, lines 2-7 for calculating the coefficients of the equalizer to minimize the error between the combined impulse response and the target impulse response.

4. Claims 2,8,14,18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strait et al as applied to claims 1,7 and 13 above respectively in view of Spruyt et al (US 6,088,386, previously cited).

Strait et al discloses all the subject matter claimed but for “a bit adjustment means for lengthening or shortening one or more symbols for use in frequency domain interpolation.”

Art Unit: 2638

Spruyt et al teaches a DSL modem including a phase rotator (TROT) and a skip/stuff means (TSS) for aligning transmitted and received symbols. See col.3, lines 39-45. The skip/stuff means (RSS) for aligning transmitted and received symbols functions to frequency modulating the multitone signal. Thus, it would have been obvious to one skilled in the art at the time the invention was made to add a phase rotator and a skip/stuff means in the DSL modem of Strait et al for aligning transmitted and received symbols, as taught by Spruyt et al.

### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

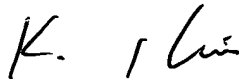
Purkovic et al (US 6,819,716), Pessoa (US 6,535,552) and Ginesi et al (US 6,456,654) each describes a target impulse response.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**KEVIN KIM**  
**PATENT EXAMINER**